

# New Zealand mortality statistics: 1950 to 2010

## Contents

Purpose	1
Overview of mortality in New Zealand	2
Deaths, raw numbers and age-standardised rates, total population, 1950 to 2010	2
Death rates from all causes of death, by sex and ethnicity, 1996 to 2008*	2
Five major causes of mortality, 1980 to 2008	3
Deaths, raw numbers and age-standardised rates, total population, 1980 to 2010	4
Deaths from all causes, by age and sex, 2007 to 2010	5
Deaths from all causes, by age and sex, age-specific rates, 2007 to 2010	5
Major causes of death in 2008	6
Major causes of death, numbers, by sex and ethnicity, 2008 (provisional data)	6
Major causes of death, WHO age-standardised rates, by sex and ethnicity, 2008 (provisional data)	7
Mortality by District Health Board in 2008	8
Death rates by DHB, total population, age-standardised rates, 2008 (provisional data)	8
Death rates by DHB, Māori population, age-standardised rates, 2008 (provisional data)	8
Death rates by DHB, non-Māori population, age-standardised rates, 2008 (provisional data)	9
Mortality notes	10
Deaths	10
Causes of death	10
Statistical notes	10
Source	11
Further mortality information	11

## Purpose

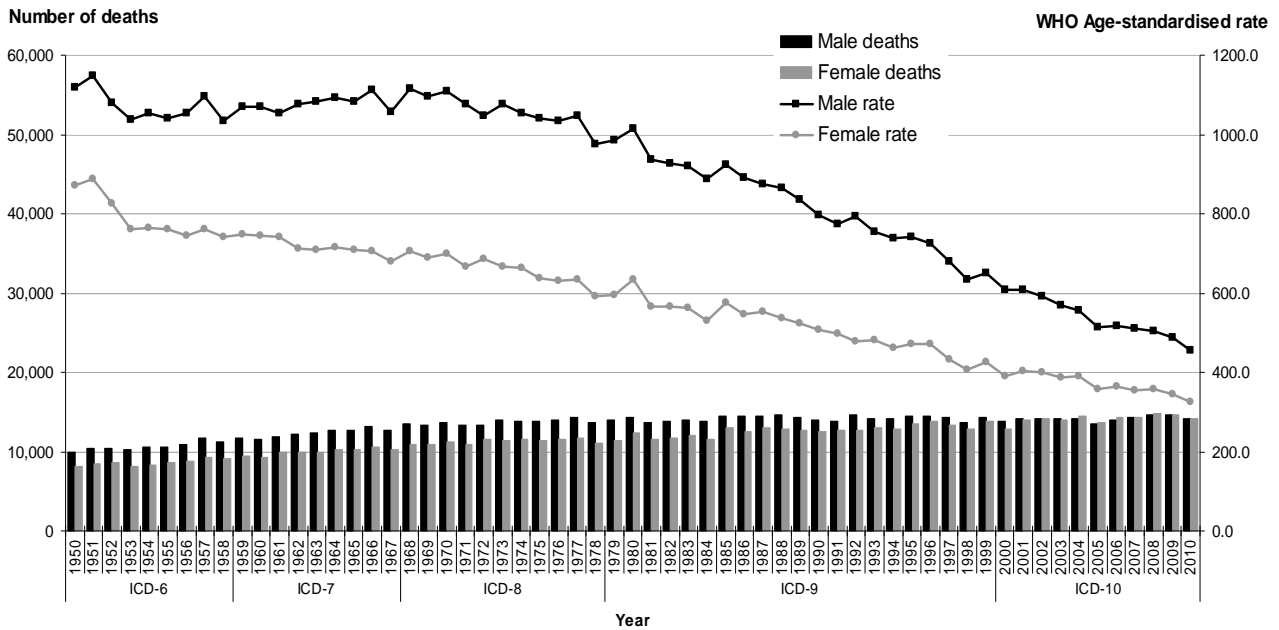
This document presents a summary of New Zealand mortality registrations up to the year 2010. Data for 2008 to 2010 is provisional and subject to change. Mortality data is considered final when it is published in the *Mortality and Demographic Data* series. Data for the years 2009 and 2010 is not yet robust enough to present mortality by cause of death or ethnicity.

More detailed mortality data may be found in the Ministry of Health publication series *Mortality and Demographic Data*. This series can be found on-line at:  
<http://www.moh.govt.nz/moh.nsf/indexmh/mortality-demographic-series>.

An explanation of the statistical methods used herein can be found at the end of this document.

# Overview of mortality in New Zealand

## Deaths, raw numbers and age-standardised rates, total population, 1950 to 2010

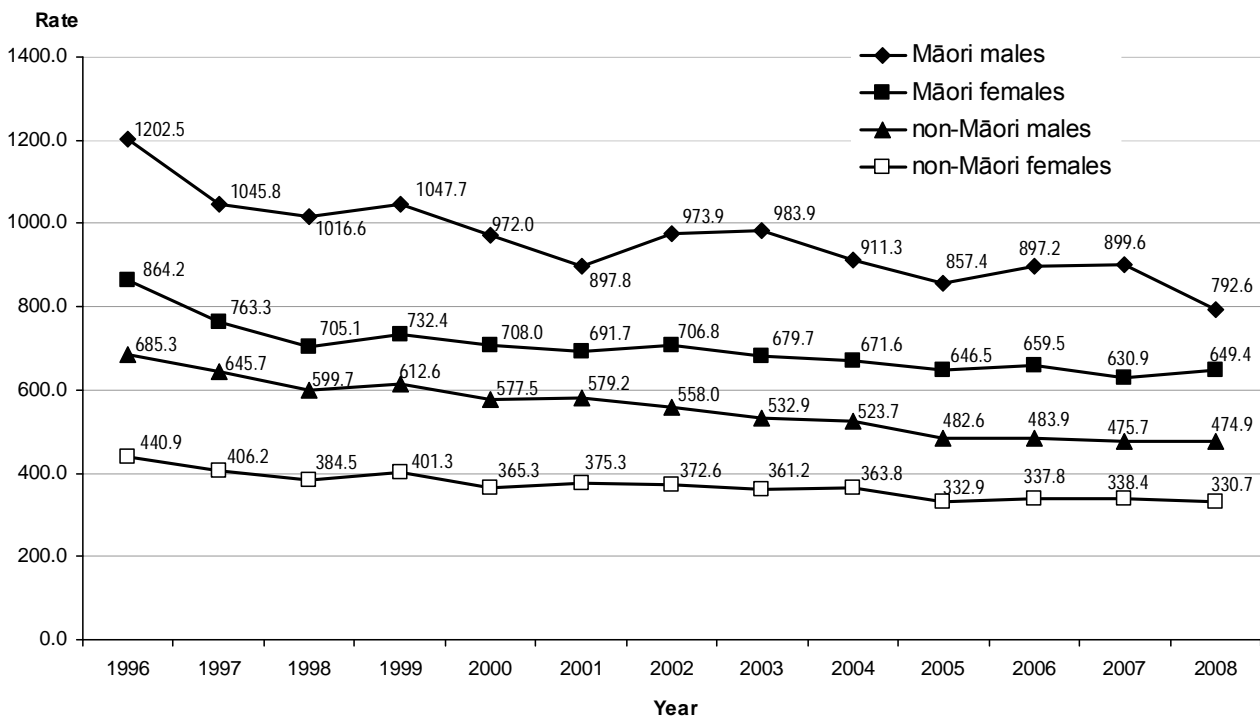


\* Data for 2008 to 2010 is provisional.

Rates per 100,000 population, age-standardised to WHO World Standard Population.

Source: Ministry of Health Mortality Data.

## Death rates from all causes of death, by sex and ethnicity, 1996 to 2008\*



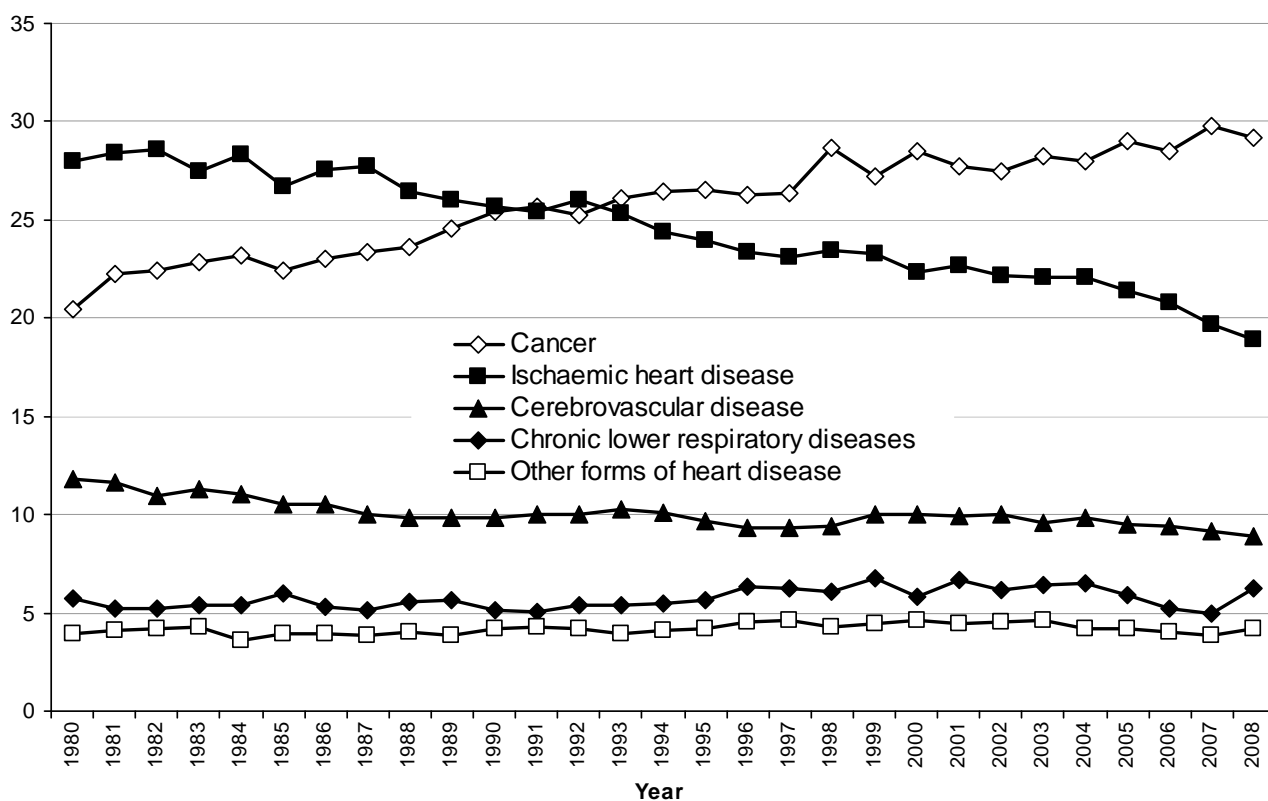
\* Data for 2008 is provisional.

Rates per 100,000 population, age-standardised to WHO World Standard Population.

Source: Ministry of Health Mortality Data.

## Five major causes of mortality, 1980 to 2008

Percentage



\* Data for 2008 is provisional.

Rates per 100,000 population, age-standardised to WHO World Standard Population.

Source: Ministry of Health Mortality Data.

## Deaths, raw numbers and age-standardised rates, total population, 1980 to 2010

	Number			Rate		
	Total	Male	Female	Total	Male	Female
1980	26,688	14,338	12,350	795.1	1013.6	633.1
1981	25,147	13,672	11,475	726.2	935.8	564.4
1982	25,547	13,834	11,713	721.4	927.2	564.8
1983	26,007	13,986	12,021	717.2	920.0	562.9
1984	25,383	13,773	11,610	685.5	888.6	531.4
1985	27,484	14,534	12,950	725.7	922.4	575.1
1986	27,052	14,533	12,519	698.1	892.1	545.6
1987	27,430	14,472	12,958	694.5	873.4	554.3
1988	27,407	14,567	12,840	681.7	865.8	535.7
1989	27,044	14,332	12,712	661.3	836.3	522.2
1990	26,524	13,967	12,557	633.9	795.7	506.2
1991	26,490	13,810	12,680	620.3	775.6	497.3
1992	27,252	14,573	12,679	615.9	793.1	476.9
1993	27,209	14,178	13,031	601.1	755.3	480.8
1994	27,093	14,169	12,924	583.1	738.0	463.1
1995	27,956	14,528	13,428	589.6	742.3	471.4
1996	28,379	14,523	13,856	581.8	723.8	471.3
1997	27,612	14,297	13,315	542.9	680.1	433.9
1998	26,457	13,661	12,796	508.5	635.0	408.0
1999	28,224	14,348	13,876	526.0	649.3	427.5
2000	26,723	13,817	12,906	487.6	609.2	391.1
2001	28,134	14,166	13,968	493.0	606.7	402.4
2002	28,360	14,195	14,164	484.0	590.4	398.7
2003	28,061	14,066	13,995	467.7	568.6	385.8
2004	28,636	14,201	14,435	464.3	556.8	388.8
2005	27,141	13,494	13,647	429.9	514.8	357.8
2006	28,389	14,023	14,366	434.9	518.0	364.9
2007	28,601	14,340	14,261	427.2	511.8	355.3
2008*	29,312	14,591	14,721	424.8	503.8	356.9
2009*	29,171	14,599	14,572	411.1	487.6	345.0
2010*	28,587	14,308	14,279	384.8	452.8	324.9

\* Data for 2008 to 2010 is provisional.

Note: 2002 includes one death of indeterminate sex.

Rates per 100,000 population, age-standardised to WHO World Standard Population.

Source: Ministry of Health Mortality Data.

## Deaths from all causes, by age and sex, 2007 to 2010

Age group	2007			2008*			2009*			2010*		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-4	394	217	177	406	243	163	372	202	170	382	220	160
5-9	38	23	15	37	19	18	34	15	19	18	12	6
10-14	55	28	27	50	32	18	54	27	27	46	26	20
15-19	185	121	64	197	130	67	187	131	56	170	118	52
20-24	212	155	57	214	155	59	207	156	51	197	143	54
25-29	161	117	44	177	121	56	174	108	66	157	100	57
30-34	228	145	83	194	127	67	227	164	63	176	99	77
35-39	339	205	134	328	191	137	295	176	119	290	182	108
40-44	469	257	212	436	257	179	442	255	187	434	244	190
45-49	655	413	242	613	372	241	668	375	293	690	402	288
50-54	887	528	359	837	485	352	957	541	416	893	520	373
55-59	1230	712	518	1299	723	576	1130	666	464	1184	720	464
60-64	1555	932	623	1671	980	691	1701	1009	692	1623	940	683
65-69	2096	1209	887	2133	1263	870	2134	1259	875	2059	1203	856
70-74	2660	1579	1081	2667	1517	1150	2680	1550	1130	2568	1478	1090
75-79	3756	2149	1607	3771	2156	1615	3538	2059	1479	3344	1894	1450
80-84	4741	2448	2293	4895	2527	2368	4808	2448	2360	4728	2465	2263
85+	8940	3095	5845	9387	3293	6094	9563	3457	6106	9444	3457	5987
<b>Total</b>	<b>28,601</b>	<b>14,333</b>	<b>14,268</b>	<b>29,312</b>	<b>14,591</b>	<b>14,721</b>	<b>29,171</b>	<b>14,598</b>	<b>14,573</b>	<b>28,587</b>	<b>14,308</b>	<b>14,279</b>

\* Data for 2008 to 2010 is provisional.

Source: Ministry of Health Mortality Data.

## Deaths from all causes, by age and sex, age-specific rates, 2007 to 2010

Age group	2007			2008*			2009*			2010*		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
0-4	134.8	144.9	124.2	135.3	158.0	111.4	122.0	128.7	114.9	121.9	137.1	105.9
5-9	13.1	15.5	10.6	12.9	12.9	12.8	11.8	10.2	13.5	5.9	7.5	4.3
10-14	18.0	17.8	18.1	16.6	20.7	12.3	18.2	17.7	18.6	15.6	17.2	13.9
15-19	57.9	74.3	40.8	61.1	79.0	42.4	57.8	79.8	34.8	53.7	72.3	34.1
20-24	72.1	105.0	39.0	72.0	103.2	40.1	67.9	101.1	33.4	61.6	86.6	35.2
25-29	60.4	89.7	32.3	64.7	90.0	40.2	61.8	77.7	46.4	53.9	69.3	38.8
30-34	82.0	109.3	57.1	71.5	97.9	47.3	84.4	127.2	45.0	64.9	75.9	54.6
35-39	107.8	136.8	81.4	104.9	128.5	83.6	95.9	120.4	73.7	98.3	130.0	69.5
40-44	147.1	166.9	128.5	138.7	169.6	110.0	141.5	169.8	115.3	139.6	164.0	117.3
45-49	209.4	271.1	150.8	191.9	239.8	146.6	207.0	239.7	176.3	215.2	259.2	174.0
50-54	328.2	397.1	261.4	302.4	357.0	249.8	336.9	388.6	287.3	302.9	360.4	248.0
55-59	505.5	592.3	420.8	531.7	599.9	465.3	457.0	547.4	369.4	468.6	581.2	360.2
60-64	785.5	956.7	619.7	791.2	943.4	643.8	767.7	926.5	614.2	698.8	826.9	575.5
65-69	1286.8	1525.2	1061.0	1281.5	1559.3	1018.3	1245.7	1505.6	997.8	1164.2	1391.7	947.6
70-74	2171.1	2701.5	1687.0	2115.5	2513.3	1750.1	2051.6	2482.0	1657.1	1823.4	2195.5	1482.4
75-79	3600.1	4465.9	2858.9	3605.2	4474.9	2862.5	3375.6	4256.8	2620.5	3191.2	3883.6	2589.6
80-84	6256.3	7791.2	5169.1	6303.1	7723.1	5269.2	6067.1	7226.8	5201.7	5818.5	6987.6	4922.3
85+	14,689.5	15,945.4	14,101.3	14,771.0	15,885.2	14,235.0	14,363.2	15,537.1	13,777.1	13,299.3	14,098.8	12,875.1
<b>Crude rate</b>	<b>676.0</b>	<b>691.7</b>	<b>660.9</b>	<b>686.3</b>	<b>697.0</b>	<b>676.0</b>	<b>675.6</b>	<b>689.1</b>	<b>662.5</b>	<b>650.7</b>	<b>662.9</b>	<b>638.9</b>

Age-specific rates per 100,000 population.

\* Data for 2008 to 2010 is provisional.

Source: Ministry of Health Mortality Data.

## Major causes of death in 2008

Malignant neoplasms (cancer), ischaemic heart disease and cerebrovascular disease were the leading causes of death in New Zealand. In 2007 they collectively accounted for 58.7 percent of deaths (cancer 29.8 percent, ischaemic heart disease 19.7 percent and cerebrovascular disease 9.2 percent).

### Major causes of death, numbers, by sex and ethnicity, 2008 (provisional data)

ICD code	Cause of death	Total		Māori		Non-Māori	
		Male	Female	Male	Female	Male	Female
C00–C96, D45–D47	Total cancer	4561	4005	385	474	4176	3531
C33–C34	Lung cancer*	889	745	109	178	780	567
C18–C21	Colorectal cancer <sup>†</sup>	693	587	41	30	652	557
C50	Breast cancer	6	618	0	76	6	542
C61	Prostate cancer	670	...	35	...	635	...
C16	Stomach cancer	173	110	26	24	147	86
C53	Cervical cancer	...	59	...	12	...	47
I20–I25	Ischaemic heart disease	2960	2594	292	191	2668	2403
I60–I69	Cerebrovascular disease	970	1641	55	79	915	1562
J40–J47	Chronic lower respiratory diseases	914	923	93	125	821	798
J44	COPD <sup>‡</sup>	824	785	75	102	749	683
I30–I52	Other forms of heart disease <sup>§</sup>	559	679	59	42	500	637
E10–E14	Diabetes mellitus	463	414	96	79	367	335
V01–V99	Transport accidents	314	139	78	41	236	98
X60–X84	Intentional self-harm	374	136	54	29	320	107
F00–F09	Organic, including symptomatic, mental disorders	257	598	6	14	251	584
J10–J18	Pneumonia and influenza	183	296	11	12	172	284
Q00–Q99	Congenital anomalies	105	77	20	12	85	65
I10–I15	Hypertensive disease	137	210	23	22	114	188
I05–I09	Chronic rheumatic heart disease	75	112	19	29	56	83
X85–Y09	Assault	34	18	13	4	21	14
	All causes of death	14,591	14,721	1514	1377	13,077	13,344

\* Includes cancer of the trachea, bronchus and lung

† Includes cancer of the colon, rectosigmoid junction, rectum, anus, and anal canal.

‡ Chronic obstructive pulmonary disease.

§ Includes pericardial diseases, valve disorders, myocarditis, cardiomyopathy, conduction disorders, cardiac arrest, and heart failure.

Source: Ministry of Health Mortality Collection.

**Major causes of death, WHO age-standardised rates, by sex and ethnicity, 2008  
(provisional data)**

ICD code	Cause of death	Total population			Māori population			Non-Māori population		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
C00–C96, D45–										
D47	Total cancer	132.3	154.9	115.3	210.8	211.2	212.4	125.2	149.7	106.6
C33–C34	Lung cancer*	25.7	30.1	22.6	70.2	58.0	81.0	22.1	27.7	17.8
C18–C21	Colorectal cancer†	19.3	23.5	15.8	18.2	22.1	14.5	19.3	23.4	15.9
C50	Breast cancer	10.2	0.2	19.1	17.1	0.0	31.8	9.6	0.2	17.9
C61	Prostate cancer	9.3	21.5	...	10.7	25.6	...	9.2	21.2	...
C16	Stomach cancer	4.4	5.9	3.1	13.1	15.2	11.4	3.8	5.3	2.5
C53	Cervical cancer	1.0	...	1.9	2.7	...	4.9	0.8	...	1.5
I20–I25	Ischaemic heart disease	72.9	97.4	51.9	131.7	169.2	100.6	68.0	91.3	48.1
I60–I69	Cerebrovascular disease	32.4	30.9	32.9	38.2	34.0	41.0	31.5	30.1	31.8
J40–47	Chronic lower respiratory diseases	25.3	29.4	22.9	61.5	61.1	63.2	22.8	27.4	20.0
J44	COPD‡	21.8	26.3	19.2	51.1	50.4	53.0	19.9	24.8	16.9
I30–I52	Other forms of heart disease§	16.1	18.7	13.5	26.6	31.7	21.6	15.0	17.4	12.8
E10–E14	Diabetes mellitus	12.9	15.6	10.6	45.3	52.1	38.6	10.5	12.8	8.6
V01–V99	Transport accidents	10.6	15.2	6.0	19.9	26.5	13.4	8.9	13.1	4.7
X60–X84	Intentional self-harm	11.5	17.3	6.1	13.5	19.3	8.4	11.0	16.8	5.3
F00–F09	Organic, including symptomatic, mental disorders	9.4	7.8	10.3	7.8	5.9	9.1	9.4	7.8	10.2
J10–J18	Pneumonia and influenza	5.8	5.9	5.6	6.5	6.0	6.6	5.6	5.7	5.5
Q00–Q99	Congenital anomalies	4.5	5.1	3.9	4.2	4.8	3.4	4.5	4.9	4.1
I10–I15	Hypertensive disease	4.5	4.6	4.3	13.3	13.7	12.6	4.0	3.9	3.8
I05–I09	Chronic rheumatic heart disease	2.7	2.7	2.7	12.3	8.7	14.5	2.0	2.0	1.9
X85–Y09	Assault	1.3	1.7	0.9	2.7	4.5	1.1	1.0	1.2	0.8
	All causes of death	424.8	503.7	356.9	717.4	792.6	649.4	397.3	474.9	330.7

\* Includes cancer of the trachea, bronchus and lung

† Includes cancer of the colon, rectosigmoid junction, rectum, anus, and anal canal.

‡ Chronic obstructive pulmonary disease.

§ Includes pericardial diseases, valve disorders, myocarditis, cardiomyopathy, conduction disorders, cardiac arrest, and heart failure.

Rates per 100,000 population, age-standardised to WHO World Standard Population.

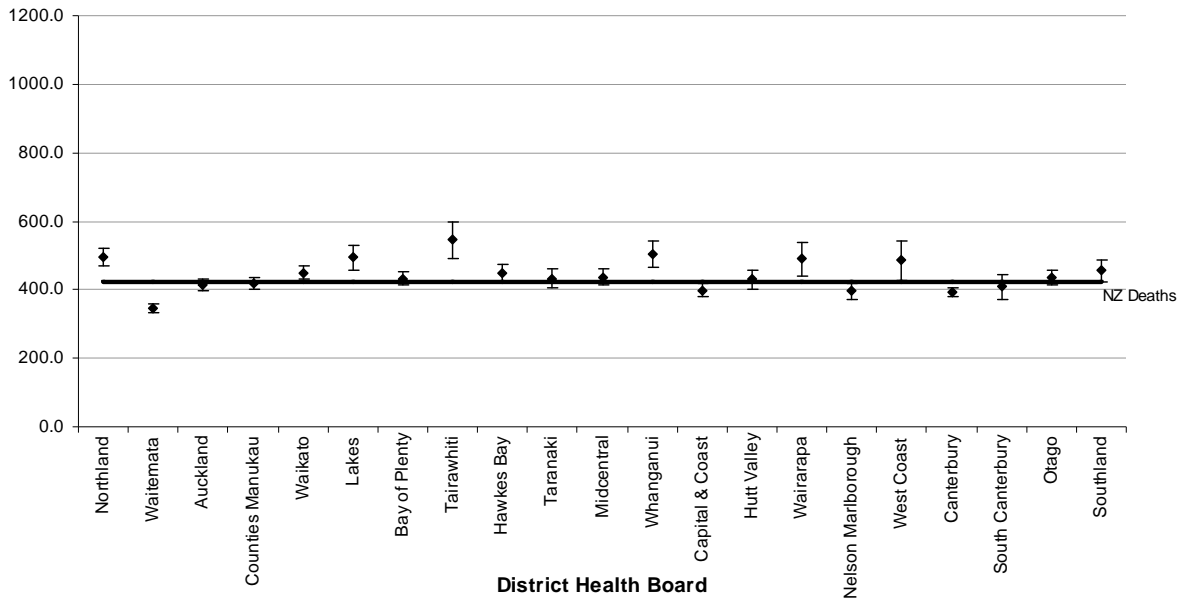
Source: Ministry of Health Mortality Collection.

## Mortality by District Health Board in 2008

The following graphs show age-standardised mortality rates by district health board (DHB), relative to the total New Zealand mortality rate.

### Death rates by DHB, total population, age-standardised rates, 2008 (provisional data)

Age-standardised rate

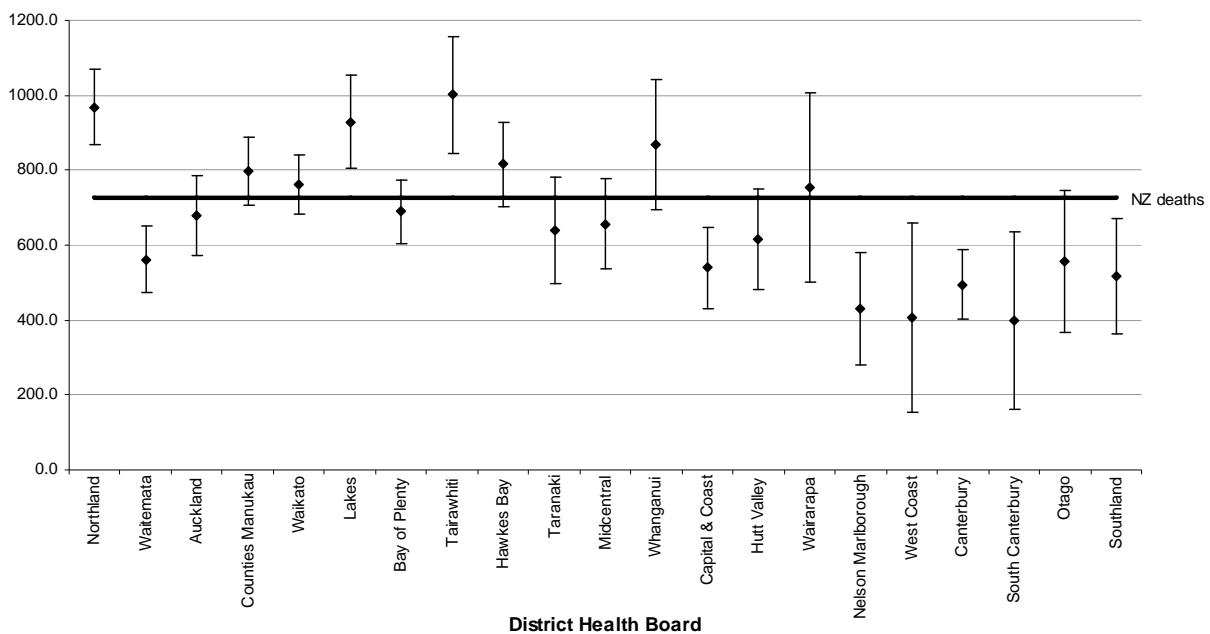


Rates per 100,000 population, age-standardised to WHO World Standard Population.

Source: Ministry of Health Mortality Data.

### Death rates by DHB, Māori population, age-standardised rates, 2008 (provisional data)

Age-standardised rate

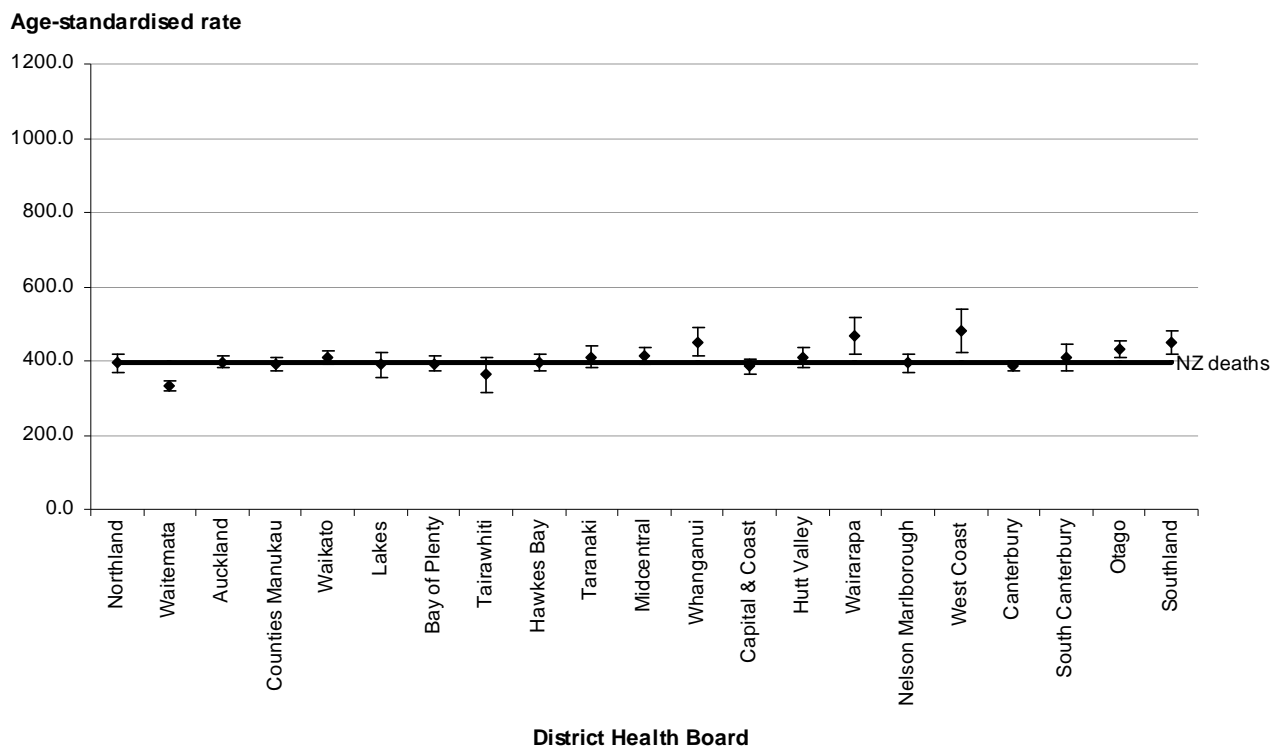


Rates per 100,000 population, age-standardised to WHO World Standard Population.

Source: Ministry of Health Mortality Data.



## Death rates by DHB, non-Māori population, age-standardised rates, 2008 (provisional data)



Rates per 100,000 population, age-standardised to WHO World Standard Population.

Source: Ministry of Health Mortality Data.

The error bars describe the confidence intervals around each data point. If the error bars do not overlap the New Zealand rate then it is reasonable to assume that the difference between the two rates is significant (ie not a product of chance).

If two confidence intervals overlap, it is not possible to make any conclusion about the significance of any difference between the rates without conducting a statistical test of difference.

## Mortality notes

### Deaths

Every death occurring in New Zealand requires registration at the Births, Deaths and Marriages Registry within three working days after the day of burial or cremation in a city or borough, or seven working days in any other case. The law does not impose any limit of time after which a death may not be registered. The death statistics in this publication relate to registrations during a particular year and not the actual number of deaths during that year.

### Causes of death

The *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification, (ICD-10-AM)* was used to classify the causes of death throughout this report. The 6<sup>th</sup> edition of ICD-10-AM was used to classify causes of death in 2008.

In New Zealand, the selection of the cause of death, where more than one cause is entered on a medical certificate, follows the WHO mortality rules and guidelines for selection of the underlying cause of death. This is largely determined from the statement of the certifying doctor or coroner, but reference is also made to postmortem reports received and cancer registrations. On some occasions, coded hospital inpatient event summaries are compared with the entries on the medical certificate in order to obtain more specific information. Information is also obtained from letters to certifying doctors and medical records departments, from data supplied by Land Transport New Zealand and Water Safety New Zealand, from internet searches, and from Coronial Services.

Where a death is due to an external cause, such as an accident, it is the external cause and not the resulting injury that is coded as the underlying cause of death. For example, if a death is due to a head injury as a result of a motor vehicle crash, the motor vehicle crash will be listed as the cause of death. The sites and types of injuries are coded as contributing causes, if reported.

## Statistical notes

### Age-specific rate

An *age-specific* rate is the rate at which a particular health event (eg death or disease incidence) occurs in each age group of a population as some unit of the population-at-risk or person-years-at-risk.

An age-specific rate is simply the crude rate for the specific age group. For example, to calculate the age-specific rate of a disease for people aged 45 to 49, the total number of cases in the age group is divided by the population in that age group and multiplied by a constant (a unit of population, such as 1000 or, as in this document, 100,000). This process produces death rates showing the number of deaths per 100,000 population in each age group in a particular year.

### Age-standardised rate

*Age-standardised* death rates adjust for differences in age distribution of the populations being compared. Age-standardised rates are artificially created figures that allow comparisons to be made with differing groups. They should only be compared with another adjusted rate that was computed using the same 'standard' population.

Age-standardised rates are calculated by multiplying *age-specific* rates by a standard population. The standard population used in these calculations is WHO World Standard Population (see below). The WHO World Standard Population is a widely used New Zealand and international standard.

Further information on age-specific and age-standardised rates can be found in the Ministry of Health/Public Health Commission document *Standardising Rates of Disease* (available online from the Ministry of Health. See: <http://www.moh.govt.nz/publications>).

### WHO World Standard Population

Age group	Population	Age group	Population
0–4	8860	55–59	4550
5–9	8690	60–64	3720
10–14	8600	65–69	2960
15–19	8470	70–74	2210
20–24	8220	75–79	1520
25–29	7930	80–84	910
30–34	7610	85–89	440
35–39	7150	90–94	150
40–44	6590	95–99	40
45–49	6040	100+	5
50–54	5370	<b>Total</b>	<b>100,035</b>

### Age-standardisation and Māori rates

As noted above, age-standardisation is intended to make two population groups comparable. Different population standards will produce different mortality rates, different rankings for causes of death and different confidence intervals. For example, a study comparing the WHO population standards used in this publication (as well as the Segi population used previously) and a Māori population standard has shown that the all-cause mortality rate for Māori was higher using the WHO standard, and that the relative rankings of some causes of Māori death (eg deaths from external causes) were lower.

### Source

*Mortality and Demographic Data* publication series  
 (see: <http://www.moh.govt.nz/moh.nsf/indexmh/mortality-demographic-series>)  
 Ministry of Health Provisional Mortality Data (as at: 02/03/2011)

### Further mortality information

For further information, contact Analytical Services at: [data-enquiries@moh.govt.nz](mailto:data-enquiries@moh.govt.nz).